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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/701,705	12/01/2000	Yukihiko Okamura	15689.61	7195
7590 06/09/2010				
ADRIAN J. LEE WORKMAN, NYDEGGER & SEELEY 1000 EAST GATE TOWER 60 EAST SOUTH TEMPLE SALT LAKE CITY, UT 84111			EXAMINER GHULAMALI, QUTBUDDIN	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 06/09/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

09/701,705

**Applicant(s)**

OKUMURA ET AL.

**Examiner**

Qutbuddin Ghulamali

**Art Unit**

2611

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4-6, 8, 18-20, 22, 23, 33-37, 47, 49 and 53-85 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 2, 4-6, 8, 18-20, 22, 23, 33-35, 37, 49 and 54-85 is/are allowed.
- 6) ☒ Claim(s) 36, 47 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This action is responsive to amendment filed 3/10/2010.

***Response to Remarks/Amendment***

2. Applicant's remarks with respect to amended claims 36 and 49 have been fully considered but are moot in view of the new ground(s) of rejection. The prior art rejection of claim 53 as being unpatentable over Abeta in view of Jasper, has been withdrawn in view of new art. The rejection of claims 36, 49 and 53, follows.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 36, 49 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Jasper (USP 5,519,370) in view of Vook et al (USP 5,982,327).

Regarding claims 36 and 49, Jasper et al discloses a channel estimation method for calculating a channel estimation value of data symbols of a data channel using pilot symbols of a pilot channel that was parallel multiplexed together with said data channel (fig. 1, col. 4, lines 14-26), comprising:

dividing (splitting) the data symbols of said data channel into a plurality of data symbol sections (processing unit (102) receives an original information (data) signal (101), converts each serially received 16 into 4 parallel signal paths), selecting (using) pilot

symbols appropriate for calculating the channel estimation value of the data symbols in each of the data symbol sections (col. 4, lines 16-21, 35-38), and generating weighting factors to be used for weighting and averaging the pilot symbols which vary (offset) from data symbol section to data symbol section in a slot (col. 7, lines 23-65; col. 8, lines 21-29, 54-67; col. 9, lines 1-12; col. 6, lines 37-62); and

weighting and averaging said pilot symbols using said weighting factors (coefficients) and calculating the channel estimation value of the data symbols in each of the data symbol sections (col. 7, lines 23-65; col. 8, lines 21-29, 54-67; col. 9, lines 1-12).

As per setting rates of data channel and pilot channel, that is to set them equal or different given the information as in Jasper of pilot insertion and pilot symbol sequences resulting in pilot rate increase for various sub-channels, is a matter of obvious choice a person of ordinary skill in the art at the time of invention would have made to arrive at data rate different from the transmission rate of pilot channel to anticipate the invention. Jasper does not explicitly disclose each data symbol sections includes a plurality of data symbols. However, Vook in a similar field of endeavor discloses (fig. 3) each data symbol sections includes a plurality of data symbols (col. 5, lines 20-43). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize a plurality of data symbols of data sections as taught by Vook in the system of Jasper because it can allow minimization of errors (interference) with an increase in the overall efficiency of the communication link the motivation would be to minimize the use of pilots and at the same time improve efficiency while simultaneously being able to track variations in the channel.

5. Claim 53, is rejected under 35 U.S.C. 103 (a) as being unpatentable over Ono (USP 5,999,560) in view of Dabak et al (USP 6,483,821).

Regarding claim 53, Ono discloses a demodulating device comprising:  
channel estimating means for deriving N (N is natural number greater than or equal to two) (interpreted as plurality of channel estimation values) number of channel estimation values (col. 6, lines 3-16) by weighted averaging of pilot signals in time using a number of weighted sequences (col. 5, lines 44-58);  
compensating means for compensating data sequences using said respective channel estimation values (col. 1, lines 21-38);  
RAKE combining means for RAKE combining respective of said N data sequences after compensation (col. 1, lines 10-38; col. 5, lines 44-58). Ono does not explicitly disclose reliability judgment means for selecting a data sequence having highest reliability from a number of data sequences after RAKE combination. However, Dabak in a similar field of endeavor discloses reliability judgment means for selecting one data sequence having highest reliability from a number of data sequences after RAKE combination (col. 4, lines 65-67; col. 5, lines 1-30). It would have been obvious to a person of ordinary skill in the art at the time of invention to use reliability judgment means for selecting a data sequence having highest reliability from a number of data sequences as taught by Dabak in the system of Ono because it can provide efficient channel estimation with improved performance while transmitting minimal number of pilot symbols for reception.

***Allowable Subject Matter***

1. Claims 1-2, 4-6, 8, 18-20, 22-23, 33-35, 37, 47, 54-85 allowed.

**Contact Information**

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutbuddin Ghulamali whose telephone number is (571)-272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.  
June 3, 2010.

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611